BLUEWATER NETWORK
Protecting the Earth
for all Living Creatures

Carol M. Browner, Administrator
US Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

March 17, 2000

Dear Administrator Browner,

On behalf of the following 53 organizations, Bluewater Network hereby petitions the Environmental Protection Agency (EPA) to identify and take regulatory action on measures to address pollution by cruise ships. Cruise ships are a significant source of marine pollution and are inadequately monitored and regulated under existing environmental laws. Our description of the pollution problems being caused by the cruise industry and our recommendations on how the EPA can address these problems follow.

## BACKGROUND

Cruise ships are floating cities that produce enormous volumes of waste. Today's largest ships can transport more than 5,000 passengers and crew, and have the capacity to generate more than 11 million gallons of waste water every day, as well as carry significant amounts of hazardous chemicals from onboard printing, photo processing, and dry cleaning operations.

The cruise industry has a dismal environmental record. A report recently released by the US General Accounting Office (GAO) found that, from 1993 to 1998 alone, cruise ships were involved in 87 confirmed cases of illegal discharges of oil, garbage, and hazardous wastes into US waters, and have paid more than $30 million in fines.[1] Foreign-flagged cruise ships represent approximately 1.5% of all foreign-flagged ships entering US ports; however, they are responsible for considerably more than this proportion (4%) of the total confirmed illegal discharges committed by all types of foreign-registered ships entering US ports during this period.[2] Furthermore, these figures represent only the **detected** cases; the aforementioned GAO report reveals that the US Coast Guard's detection and enforcement capabilities are hamstrung by numerous shortcomings, which suggests that this number likely represents only a fraction of the actual illegal dumping being carried out by the cruise industry.

The cruise industry's repeated violation of environmental laws is a matter of grave concern. In a particularly disturbing case, Royal Caribbean Cruises Ltd. admitted to routinely dumping waste oil from several of its ships, and deliberately dumping hazardous chemicals from photo processing labs, dry cleaning operations and print shops into several US harbors and coastal areas, *over a period of several years*. Ships were rigged with secret piping systems to bypass pollution treatment equipment. Investigators said the company's violations were so unscrupulous that they characterized the case as a "fleet-wide conspiracy" to "use our nation's waterways as its dumping ground," and so pervasive that the criminal conduct amounted to a routine business practice. The company pled guilty to a total of 21 felony counts in six US jurisdictions, and agreed to pay a record $18 million in criminal fines.[3]

300 BROADWAY, SUITE 28 • SAN FRANCISCO, CA 94133 • PH: 415.788.3666 • FAX: 415.788.7324
EMAIL: bluewater@earthisland.org • WEBSITE: www.earthisland.org/bw

The cruise industry's history of illegal dumping clearly demonstrates the need for stricter monitoring and regulation. We must ensure that the marine environment and public health and welfare are not compromised again by a lack of vigilance and oversight.

Several types of cruise ship discharges are exempt from key regulations governing other wastewater dischargers. For example, the Clean Water Act makes it unlawful to discharge any pollutant from a point source into US waters unless a permit is obtained under the National Pollutant Discharge Elimination System (NPDES). However, discharges of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes ("graywater"), or any other discharge "incidental to the normal operation of a vessel," are exempt from the requirement to obtain NPDES permits (40 C.F.R. § 122.3(a)).

## RECOMMENDATIONS

The undersigned groups are writing to formally petition for an in-depth assessment of the volumes and characteristics of the spectrum of waste streams from cruise ships, analysis of their potential impact on water quality, the marine environment, and human health, examination of existing federal regulations governing cruise ship waste streams, and formulation of recommendations on how to better control and regulate these waste streams.

This assessment should include, but not be limited to the following:

- Quantification of the volumes of all waste streams from cruise ships and assessment of the adequacy of existing regulations to control such wastes in such volumes.
- Scientific assessments of the impacts of these wastes on water quality, the marine environment and human health.
- Delineation of options for a comprehensive monitoring, record-keeping and reporting regulation for all pollutants discharged into US waters and wastes offloaded at US ports from cruise ships.
- An evaluation of the effect of repealing 40 C.F.R. § 122.3(a), thereby requiring NPDES permits for discharges of graywater and other "incidental" discharges.
- Examination of the need for and best means of more strictly defining and regulating graywater.
- Clarification of the regulations governing, and permits, records and reports required for, all hazardous wastes generated on cruise ships, both while at sea and once offloaded, and delineation of options for whether and how these should be strengthened.
- Determination and implementation of effective means for EPA to encourage and assist the Coast Guard in fully enforcing its current regulations as efforts to strengthen protection from cruise ship pollution are made.

We further urge you to implement the recommendations outlined in the GAO Report referenced above, and to initiate and actively pursue coordination and follow-up activities to ensure that any recommendations called for in this petition which may not fall under the EPA's jurisdiction are implemented by the relevant agencies (i.e. the US Coast Guard). We request that you produce a report of your investigations and findings on these and other matters, and a list of options to best address them.

## CRUISE SHIP WASTE STREAMS

**Sewage:** Vessel sewage is more concentrated than domestic sewage because people on vessels use less volume of water for sanitary purposes than do people on land.[4] The discharge of sewage from vessels into the water contributes to the degradation of the marine environment by introducing disease-causing microorganisms and excessive nutrients. For example, sewage releases into the marine environment can endanger public health if discharged in the vicinity of shellfish beds. Shellfish and other filter feeders concentrate pathogens in their tissues, causing them to be unsafe for human consumption. Sewage-borne pathogens are also harmful to corals, causing disease and scarring in many species.[5]

Nutrients, such as nitrogen and phosphorous, promote excessive algal growth, which consumes oxygen in the water and leads to fish kills. Excessive algal growth also smothers and kills coral reefs. Eutrophication, or over-enrichment of nutrients, is also a cause of the loss of diversity in the sea floor community (including seaweeds, seagrasses, and corals), and among planktonic organisms. Planktonic algae are the basis of marine food webs and a change in the dominant species can have a domino effect throughout the food web.[6]

Sewage discharged from vessels can also be visually repulsive and decreases the use of water bodies for contact sports, such as swimming, water skiing, snorkeling, scuba diving and surfing.

In addition, chemicals and deodorizers used in many marine sanitation devices (MSDs) can contain chlorine, quaternary ammonia, or formaldehyde, all harmful to aquatic life.[7]

A typical cruise ship generates an estimated 210,000 gallons of sewage on a one-week voyage.[8]

While sewage is defined as a pollutant under the Clean Water Act, sewage from vessels is exempt from this definition (33 U.S.C.§1362(6)), and is therefore also exempt from the requirement to obtain an NPDES permit (40 C.F.R.§122.3(a)). Section 312 of the Clean Water Act (33 U.S.C.§1322) seeks to address this gap by prohibiting the dumping of untreated or inadequately treated sewage into the navigable waters of the US (within three miles of shore). Beyond the three-mile limit, raw sewage can be dumped into the ocean.

Vessels are required under Section 312 to have marine sanitation devices (MSDs), certified by the US Coast Guard, which are designed to prevent the discharge of untreated sewage. The Coast Guard intermittently inspects cruise ships' MSDs while in port to ensure their proper functioning, but neither the Coast Guard nor the ships are required to sample, monitor or report on the levels of pollutants and other parameters of the effluents it discharges, as are other industries or municipalities that discharge treated sewage into state waters.

The Coast Guard regulations and inspection and enforcement mechanisms are completely inadequate to ensure compliance with Section 312. The GAO report on cruise ship pollution incidents found that Coast Guard inspectors "rarely have time during scheduled ship examinations to inspect sewage treatment equipment or filter systems to see if they are working properly and filtering out potentially harmful contaminants."[9] This has created a wide discrepancy between the manner in which sewage from vessels and other sources of sewage are regulated.

Cruise ship sewage discharges should be subject to regulations equivalent to those governing other dischargers of sewage into the marine environment, and must be regulated more stringently to adequately protect the marine environment.

- We request that you identify alternatives for regulating sewage discharges from vessels that address impacts from such pollutants as increased biological oxygen demand (BOD), chlorine, and ammonia, and provide for more comprehensive sampling, monitoring and reporting of sewage discharges by the cruise industry.

**Graywater:** Graywater, or wastewater from sinks, showers, galleys and laundry, contains contaminants, such as detergents, cleaners, oil and grease, metals, pesticides, and medical and dental waste, as well as significant concentrations of priority pollutants.

As mandated by Section 312 of the Clean Water Act (33 U.S.C. § 1322), the Department of Defense and the EPA have conducted studies on discharges from vessels of the Armed Forces to identify those discharges for which Uniform National Discharge Standards (UNDS) for vessels of the Armed Forces should be developed. These studies have determined that graywater "has the potential to cause adverse environmental effects because measured concentrations and estimated loadings of nutrients and oxygen-demanding substances are significant."[10]

A typical cruise ship generates an estimated 1,000,000 gallons of graywater on a one-week voyage.[11]

Under current regulations, graywater can be discharged anywhere (except the Great Lakes; see 33 U.S.C. § 1322(a)(6)). The discharge of graywater is also exempt from requiring a NPDES permit (40 C.F.R. § 122.3(a)).

There is a growing body of evidence that graywater is inadequately regulated under current regulations. Officials interviewed for the GAO Report expressed particular concern about the billions of gallons of untreated graywater dumped legally by cruise ships, and suggested that the Coast Guard may need to review the regulatory definition of graywater to evaluate whether current regulations adequately address the potential environmental hazards to marine life from graywater discharges.[12] Furthermore, the UNDS process has identified graywater as a discharge with potential to cause adverse environmental effects. The US delegation to the International Maritime Organization's Marine Environment Protection Committee (MEPC) contends that graywater may contain contaminants that pose greater threats than sewage discharges, and recommends that consideration be given to subjecting graywater to some form of regulation.[13] The fact that the cruise line Royal Caribbean was found to be illegally mixing hazardous wastes and toxic heavy metals with its graywater and discharging it into US harbors and coastal waters further supports our belief that action must be taken to regulate graywater releases.

- We request that you identify and explore a range of options to more narrowly define and regulate graywater, and take regulatory action on those determined to be most effective at addressing the above concerns.

**Hazardous Wastes:** Hazardous wastes generated on cruise ships include: dry cleaning sludge (which contains the listed hazardous waste perchlorethylene, or PERC), waste from photo processing laboratories and x-ray development (which contains silver, a toxic waste), paint waste and dirty solvents (which contain toluene, xylene, benzene, turpentine, methyl ethyl ketone, etc.), print shop

wastes (hydrocarbons, chlorinated hydrocarbons, and heavy metals), fluorescent lamp bulbs (mercury), and batteries (lead, corrosives, cadmium), among others.[14]

A typical cruise ship generates an estimated 110 gallons of photo chemicals, five gallons of dry cleaning waste (PERC), ten gallons of used paints, and five gallons of expired chemicals on a one-week voyage; volumes of other hazardous wastes are unknown.[15] These estimates are provided by Royal Caribbean; otherwise, there is a paucity of reliable data on the volumes and types of hazardous wastes generated by cruise ships, and a lack of clarity regarding what laws apply to the management and disposal of these wastes.

For instance, it is presently unclear whether cruise ships are classified as "small quantity generators," meaning they generate more than 100 kg but less than 1,000 kg of hazardous waste per month, or "large quantity generators" (generating more than 1,000 kg per month).[16] The former is subject to less stringent record-keeping and reporting requirements under the Resource Conservation and Recovery Act (RCRA); for instance, they are not required to prepare biennial reports which describe the quantities of hazardous wastes generated and offloaded, outline efforts undertaken to reduce the volume and toxicity of wastes generated, and compare changes in waste volume and toxicity with previous years (40 C.F.R. § 262.41). Some cruise companies maintain that they should be considered "conditionally exempt small quantity generators" (generating less than 100 kg of hazardous waste per month) and therefore not be subject to basic requirements of notification of hazardous waste activity or application for EPA identification numbers which enable tracking of hazardous waste generated on cruise ships.[17]

Furthermore, it is unclear whether each ship should be considered as a distinct generator under RCRA, or whether a company as a whole or a facility which may store hazardous wastes from several ships should be considered as the generator, and therefore which category of generator they fall under (conditionally exempt, small or large quantity generator).[18]

In addition, it appears as though the EPA is interpreting the exemption in 40 C.F.R. § 261(c) for hazardous wastes generated on board certain vessels to mean that key sections of RCRA (40 C.F.R. § 262-265, 268, 270, 271, and 124 or the notification requirements of section 3010 of RCRA) do not apply to hazardous waste while a ship is sailing, but only when the waste has been landed on shore.[19]

PERC is a listed hazardous waste that can cause cancer and birth defects in humans, and small amounts of PERC in water have been shown to be toxic to aquatic animals, who can store the chemical in their fatty tissues.[20] Metals, such as silver, mercury, and lead, bind to sediment and are transported to coastal waters through sedimentation. These toxic substances can cause scarring, death, or reproductive failure in fish, shellfish, and other marine organisms. In addition, they can accumulate in fish tissue, leading to fish consumption advisories.[21] Mercury is a persistent, bioaccumulative and toxic pollutant (PBT) that can build up in the food chain to levels that are harmful to humans and ecosystem health.[22] Benzene, a volatile organic compound (VOC), is a known human carcinogen.

There are a range of activities on board cruise ships which generate hazardous wastes and toxic substances. Given the lack of available data on the quantities of various hazardous wastes generated on cruise ships, the lack of clarity regarding what regulations govern the generation, handling, storage and disposal of such wastes, and the number of proven instances of irresponsible handling, storage and disposal of hazardous wastes by the cruise industry, we believe that there is a tremendous need for greater oversight and regulation of hazardous wastes generated by the cruise industry.

- We request that you clarify the regulations governing, and permits required for, all hazardous and toxic wastes generated by the cruise industry, both while at sea and once offloaded, and delineate options for whether and how these should be strengthened.

**Solid Waste:** Non-hazardous solid waste generated on cruise ships includes huge volumes of plastic, paper, wood, cardboard, food waste, cans and glass. Much of this solid waste is incinerated on board and the ash discharged at sea, while some is landed ashore for disposal or recycling.

A typical cruise ship generates an estimated eight tons of garbage on a one-week voyage.[23]

Floating plastic debris is known to have serious detrimental effects on a wide range of marine animals. Plastic can kill mammals, turtles, birds and fish as a consequence of entanglement or ingestion. The Coast Guard estimates that more than one million birds and 100,000 marine mammals die each year from eating or getting entangled in plastic debris. Studies have also shown that plastics can reduce steroid hormone levels and affect the reproductive success of seabirds.[24]

The Marine Protection, Research and Sanctuaries Act (MPRSA) (33 U.S.C. § 1401-1445) makes it illegal to transport garbage from the US for the purpose of dumping it into ocean waters, and to dump any garbage transported from a location outside the US into US territorial seas or the contiguous zone (12 miles from shore). The Act to Prevent Pollution from Ships (APPS) (33 USC §1901-1912) and its implementing regulations (33 C.F.R. § 151.51-77) prohibit the discharge of: all garbage within three miles of shore; certain types of garbage from 3-25 miles offshore; and plastic anywhere. Vessels are required to record each discharge or incineration of garbage in a Garbage Record Book.

Many of the proven cases of illegal discharges by the cruise industry involved the dumping of plastic at sea. In fact, 77% of all ship waste comes from cruise ships.[25] While it is problematic that many ports where cruise ships call may not have adequate reception facilities for the volumes of waste being brought by cruise ships for disposal or recycling, this does not condone illegal dumping of garbage at sea. There is a concern that Garbage Record Books are not verifiable or adequately inspected. There is a further concern that batteries and other trash that would cause garbage to be hazardous may be mixed with other solid waste to be incinerated, and thus incinerator ash that is being discharged at sea may be hazardous.

- We request that you gather data on the volumes of solid waste generated by cruise ships, outline options to address inadequate port reception facilities, work with the Coast Guard to formulate means to ensure compliance with MPRSA and APPS (such as matching port receipts for garbage to ships' Garbage Record Books for inconsistencies), and examine the options for regulations requiring sampling and testing of incinerator ash.

**Oily Bilge Water:** Fuel, oil, on-board spills and waste water from engines and other machinery collect in the bilge, an area located at the bottom of a vessel's hull. Bilge water may also contain solid wastes, such as rags, metal shavings, paint, glass and cleaning agents, and pollutants in bilge contain high amounts of BOD, COD, dissolved solids, oil and other chemicals.[26] Oil and gasoline resulting from spills or leaks from vessels and/or the discharge of bilge water can poison fish and other marine organisms. Research has shown that by-products from the biological breakdown of petroleum products can harm fish and wildlife and pose threats to human health if ingested.[27] Ingestion of oil can kill birds or lead to starvation, disease and predation. Marine mammals can experience skin and eye lesions and interference with swimming ability when they come in contact with oil; gastrointestinal tract hemorrhaging, renal failure, liver toxicity and blood disorders from ingestion of oil; and inflammation of mucous membranes, lung congestion, pneumonia and nervous

system disturbances from inhalation of volatile petroleum hydrocarbons. Oil in even minute concentrations can kill fish or have numerous sub-lethal effects such as changes in heart and respiratory rates, enlarged livers, reduced growth, fin erosion, and various biochemical and cellular changes.[27]

A typical cruise ship generates an estimated 25,000 gallons of oily bilge water on a one-week voyage.[28]

The Clean Water Act as amended by the Oil Pollution Act (33 U.S.C. § 2701-2761) prohibits the discharge of oil or hazardous substances, in such quantities as may be harmful, into or upon US navigable waters, adjoining shorelines, or into or upon the waters of the contiguous zone or which may affect natural resources in the US Exclusive Economic Zone (200 miles offshore). 33 C.F.R. § 151.10 prohibits the discharge of oil within 12 miles of shore, unless passed through a 15 ppm oil water separator and does not cause a visible sheen; beyond 12 miles, oil or oily mixture can be discharged while proceeding en route and if the oil content of the effluent without dilution is less than 100 ppm.

Under 33 C.F.R. § 151.25, vessels are required to maintain an Oil Record Book, which must, among others, record the disposal of oily residues and the discharge overboard or disposal of bilge water. However, given that the crimes committed by Royal Caribbean Cruises Ltd. included routine falsification of the Oil Record Book, and given the unacceptably large and disproportionate number of cases of illegal oil discharges by cruise ships documented in the GAO Report, we believe that the monitoring of the cruise industry's bilge water and other oily waste discharges, as well as the reporting requirements to which such discharges are subject, deserve scrutiny and reassessment.

- We request that you outline options for how to improve and strengthen the monitoring and enforcement of cruise ship activities subject to the Oil Pollution Act and Coast Guard regulations under 33 C.F.R. § 151, 153 and 155.

## Conclusion

Cruise ships are point sources of enormous volumes of waste which can have significant impacts on the marine environment and public health. Coupled with the cruise industry's proven record of violating pollution laws, it is clear that we need more rigorous oversight of all cruise ship waste stream discharges.

- We request that you delineate options for a comprehensive monitoring, record-keeping and reporting regulation or program for all pollutants discharged into US waters and wastes offloaded at US ports from cruise ships.

We believe that this petition lays out a number of constructive recommendations which represent important first steps in a process to help prevent the further pollution of the marine environment by cruise ships. We look forward to your response, and to working with you to develop a wide range of options and milestones by which to address this pressing problem.

Sincerely,

Kira Schmidt
Campaign Director
Bluewater Network

Russell Long
Executive Director
Bluewater Network

Cc: The Honorable John D. Dingell, US Congressman
The Honorable Peter DeFazio, US Congressman
The Honorable Nancy Pelosi, US Congresswoman
The Honorable Henry A. Waxman, US Congressman
The Honorable Barbara Boxer, US Senator
The Honorable Dianne Feinstein, US Senator
J. Charles Fox, Assistant Administrator, US EPA Office of Water
Michael B. Cook, Director, US EPA Office of Wastewater Management
Robert H. Wayland III, Director, US EPA Office of Wetlands, Oceans and Watersheds
Timothy Fields, Jr., Assistant Administrator, US EPA Office of Solid Waste and Emergency Response
Susan H. Wayland, Acting Assistant Administrator, US EPA Office of Prevention, Pesticides and Toxic Substances
Lois J. Schiffer, Assistant Attorney General, US Department of Justice Environment and Natural Resources Division
Joseph J. Angelo, Director of Standards, US Coast Guard
Howard Hime, Chief, US Coast Guard Office of Standards Evaluation and Development
Rear Admiral Robert C. North, Assistant Commandant, US Coast Guard Marine Safety and Environmental Protection
Captain Peter Richardson, Chief, US Coast Guard Office of Operating and Environmental Standards
Captain B. Basel, Chief, US Coast Guard Office of Compliance

## ENDNOTES

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**COMPLETE LIST OF SIGNATORIES:**

Alaska Community Action on Toxics, Pamela K. Miller, Program Director
Alabama Rivers Alliance, Justin Ellis, Watershed Leadership Director
American Oceans Campaign, Ted Morton, Policy Director
American Rivers, Carolyn M. Bausch, Director of Foundation Relations
Association of Caribbean States, Carlos Davila, Senior Professional
Atlantic States Legal Foundation, Inc., Samuel H. Sage, President
The Brower Fund, Mikhail Davis, Project Director
CALPIRG, Matthew Shaffer, Toxics Policy Advocate
Campaign to Safeguard America's Waters (C-SAW), Gershon Cohen, Project Director
Caribbean Alliance for Sustainable Tourism, Mabel Sanabria, Information Specialist
Caribbean Conservation Corporation, David Godfrey, Executive Director
Cawthron Institute, Stephen Brown, Marine Ecologist
Center for Marine Conservation, Tim Eichenberg, Program Counsel
Center for Marine Conservation Pacific Region Office, Linda Sheehan, Director
Center for Science in Public Participation, Amy Crook, Alaska Program Coordinator
Clean Ocean Action, Joe Woerner, Outreach and Research Associate
Coastal Research & Education , Inc., Ken Lindeman, President
Coastal Waters Project, Ron Huber, Director
Cruise Control Inc., Mala Reges, President
Earth Island Action Group, David Brower, President
Florida Keys Environmental Restoration Trust Fund, Curtis Kruer, Senior Consultant
Florida Marine Research Institute, Anne Wakeford, Environmental Specialist III
Friends of Casco Bay, Joe Payne, Casco BayKeeper
Friends of the Sea Otter, Jim Curland, Science Director
Galveston Bay Conservation and Preservation Association, Mona Shoup, Co-Chair
Global Service Corps, Rick Lathrop, Executive Director
Gulf Restoration Network, Cynthia Sarthou, Executive Director
Heartland Environmental Council, Dr. Richard Aber, Vice-President
International Marine Mammal Project, Mark Berman, Assistant Director
Lower Chatham Conservation Society, Anissa Berry, President
Mangrove Action Project, Alfredo Quarto, Director
Neighborhood Mine Watch (Alaska), Mara C. Bacsujlaky, Executive Director
North Fork River Improvement Association, Jeff Crane, Project Coordinator
Ocean Advocates, Fred Felleman, Northwest Director
Ocean People Resources, Kristin Stahl-Johnson, Chief Marine Policy Analyst
Oceanic Resource Foundation, Greg Carter, President
Ocean Watch Foundation, Lisa Wetherington, Executive Director
Planning and Conservation League, Jerry Meral, Executive Director
Rivers Alliance of Connecticut, Margaret Miner, Executive Director
Rivers Unlimited, Mike Fremont, President
Save the Manatee Club, Pat Rose, Director of Governmental Relations
Save the Sound, Inc., Tracy Egoscue, Policy Analyst
Sea Shepherd Conservation Society, Andrew Christie, Information Director
Sea Turtle Survival League, Daniel R. Evans, Education Coordinator

Sitka Conservation Society, Page Else, GIS Analyst
Sport Fishing Magazine, Doug Olander, Editor-in-Chief
Surfrider Foundation, Eve J. Kliszewski, Environmental Director
Surfers Tired of Pollution, Donna Frye, Founder
WaterKeepers Northern California, Jonathan Kaplan, BayKeeper
Water Keeper Alliance, Kevin Madonna, Executive Director
Water Watch, Sheri Stepper, Executive Director
West Coast Fisherman's Alliance, John Warner, Chairman
Yggdrasil Institute, Mary Byrd Davis, Director